



REPLACEMENT OF SILICA IN COLOUR SHOE SOLING RUBBER COMPOUND BY SEMI REINFORCING KAOLIN

BY

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Abstract

In this project, attempts have been made to identify the reasons for product failure of beige colour rubber compound due to abnormal stretching at my working place, Arpitallian compact Soles Pvt Ltd, export processing Zone, Biyagama. With analysis of all the compounds and their ingredients, especially with comparison with black colour compounds, It was identified that Silica in the beige colour compound formulation has caused this problem. The accurate problem identification has helped to develop remedies to overcome.

Firstly, the recognized international standards for resin rubber shoe soling sheets and the limitations of these standards were studied in depth. Then the contribution from each ingredient in the rubber compound formulation was taken in consideration and developed a formulation to obtain desired physical and chemical properties.

In this approach, the ingredients of resin rubber compounds were studied in depth in order to find out their contribution to the final properties of vulcanizates. This helped to identify micro level reactions and able to find out cause of abnormal stretching defect. The production processes, raw materials and technologies adopted were also studied in depth to understand their effects to end product.

With the determination of physical properties of products, it was identified the elongation at break of beige products are 68% higher than the black colour products. The experiments revealed that silica in the beige colour compound has brought this adverse effect. therefore, as a remedy for this problem, the silica was replaced with a new type of semi reinforcing kaolin filler lowering the cost of the beige colour rubber compound by considerable percentage and eliminating the quality problem